

ETA-HAC06

Revision A

Effective: May 15, 2001

Vehicle Verification

Prepared by

Electric Transportation Applications

Prepared by: _____

Jude M. Clark

Date: _____

Approved by: _____

Donald B. Karner

Date: _____

TABLE OF CONTENTS

1.0	Objectives	3
2.0	Purpose	3
3.0	Documentation	3
4.0	Initial Conditions and Prerequisites	4
5.0	Verification Requirements	5
6.0	Glossary	11
7.0	References	12

Appendices

Appendix A - Manufacturer's Proposal Review Check List	13
Appendix B - Vehicle Receipt Check List	18

1.0 Objective

This procedure identifies a common protocol for the collection of verification data for each vehicle delivered to Electric Transportation Applications for testing. These activities shall be completed in conjunction with procedure ETA-HTP11, "Receipt Inspection Procedure," and prior to commencement of testing activities performed in accordance with procedures prepared by Electric Transportation Applications.

2.0 Purpose

This procedure identifies the verification parameters that shall be recorded prior to Performance Testing of any Electric Vehicle provided to Electric Transportation Applications. Additional verification requirements are addressed in Procedure ETA-HTP11, "Receipt Inspections," which shall be completed concurrent with and subsequent to this procedure.

3.0 Documentation

Documentation addressed by this procedure shall be consistent, easy to understand, easy to read and readily reproducible. This documentation shall contain enough information to "stand alone"; that is, be self-contained to the extent that all individuals qualified to review it could be reasonably expected to reach a common conclusion, without the need to review additional documentation. Storage and retention of records shall be completed as described in Procedure ETA-HAC01, "Control, Close-out and Storage of Documentation."

4.0 Prerequisites

- 4.1 Individuals assigned to verify completion of this procedure shall be conversant with the Technical Guidelines against which the vehicle is being inspected, the basic technologies involved, and familiar with the design configuration documentation as provided by the manufacturer of the vehicle being inspected.
- 4.2 Individuals assigned to complete this activity shall have received the appropriate training in accordance with ETA-HAC05, "Training and Certification of Personnel Utilizing ETA Procedures."
- 4.3 Prior to commencing activities controlled by this procedure a meeting of the involved personnel shall be held to discuss, at a minimum, the following:
 - 4.3.1 Data required;
 - 4.3.2 Data available;
 - 4.3.2 Data sources;
 - 4.3.4 Contingencies
 - 4.3.5 Methods to ensure safety
- 4.4 The verification of data may be completed at any time prior to the need for information being evidenced (e.g., the battery charging information is not needed until it becomes necessary to charge a vehicle's battery), but in all cases shall be completed prior to testing to any procedure other than that required by procedure ETA-HTP11.
- 4.5 All documentation required to complete the activities addressed by this or other procedures shall be completed, approved and issued prior to commencing the testing it addresses. In no case shall any document be used for official testing or data collection prior to its' effective date.

5.0 Verification Requirements

This procedure shall be completed for each vehicle which is scheduled to be received for testing by Electric Transportation Applications. The vehicle must be present to obtain some of the required information (curb weight, vehicle heights, ground clearance, etc.). However, a significant amount of information concerning the vehicle may be obtained from data supplied by the Supplier and provided prior to receipt of the vehicle. As such, this procedure may be implemented upon receipt of the Supplier's information, but shall not be completed prior to actual inspection of the vehicle.

- 5.1 Review the Supplier's provided documentation. Make a copy of the HEV America Technical Requirements Appendices A and B completed and provided by the manufacturer. Review these documents for the following:
 - 5.1.1 All blanks have been filled in.
 - 5.1.2 All data required have been provided.
 - 5.1.3 For blanks which have either no entry or an "N/A" (or similar notation), note the specific entry which is incomplete and the reason the entry is incomplete (if known).
 - 5.1.4 Attempt to obtain the missing data from the proposal.
 - 5.1.5 The Program Manager or the Test Manager shall be notified of any missing data. They shall notify the Supplier's representative of which data are missing, and request their assistance in obtaining it. However, all requests for data from the Supplier shall be made in writing, through the Program/Project Manager.
- 5.2 From the Supplier's Submittal, record the following information:
 - 5.2.1 Vehicle Year, Make and Model
 - 5.2.2 Vehicle Manufacturer
 - 5.2.3 Number of occupants
 - 5.2.4 Amount of payload beyond the passenger capacity
 - 5.2.5 Design curb weight
 - 5.2.6 Design rated payload
 - 5.2.7 Speedometer accuracy
 - 5.2.8 Odometer accuracy
 - 5.2.9 The standard tire Manufacturer
 - 5.2.10 The standard tire model and size
 - 5.2.11 Interior passenger volumes/dimensions
 - 5.2.12 Cargo area volumes/dimensions

- 5.2.13 Transmission is a single speed, multi-speed automatic, manual or continuous variable speed (CVT)
- 5.2.14 Transmission has a parking mechanism
- 5.2.15 Battery voltage limits have been provided
- 5.2.16 Battery module weight
- 5.2.17 Battery pack weight
- 5.2.18 Battery pack voltage
- 5.2.19 Number of modules in the battery pack
- 5.2.20 A detailed description of the main propulsion battery pack has been provided
- 5.2.21 Propulsion battery specific energy
- 5.2.22 Propulsion battery specific power
- 5.2.23 Propulsion battery discharge capacity to 80% DOD, one-hour rate
- 5.2.24 Propulsion battery discharge capacity to 80% DOD, three-hour rate
- 5.2.25 Methods used to prevent or accommodate condensation in the battery box have been provided
- 5.2.26 Quantity and maximum rate of hydrogen gas generation under normal charging conditions
- 5.2.27 Quantity and maximum rate of hydrogen gas generation under abnormal charging conditions
- 5.2.28 Battery installation details, including time, training and equipment requirements, have been provided
- 5.2.29 Battery module connection data has been provided
- 5.2.30 The internal vent pressure level for valve regulated batteries
- 5.2.31 Projected charge cycles at various levels of discharge
- 5.2.32 Supplier has described how battery life is maximized
- 5.2.33 Supplier has described the function of the Battery Management System (BMS)
- 5.2.34 Supplier has provided information on how battery temperature gradients are minimized
- 5.2.35 Maximum normal gassing rate for the battery pack
- 5.2.36 Maximum abnormal gassing rate for the battery pack
- 5.2.37 Battery packs are not connected in parallel
- 5.2.38 Detailed information on charging algorithms required to prevent parallel strings from becoming unbalanced has been provided
- 5.2.39 Battery maintenance requirements have been described
- 5.2.40 Battery maintenance costs have been described

- 5.2.41 Battery charging method and algorithm has provided by the Supplier
- 5.2.42 The Supplier has provided information on how battery off-gassing is managed
- 5.2.43 The Supplier has provided information on how battery box venting is achieved
- 5.2.44 The Supplier has provided data showing that the regenerative braking system will not adversely impact the vehicle's braking ability and create a safety hazard
- 5.2.45 High voltage markings have been installed at points where the high voltage components can be breached
- 5.2.46 Low voltage connectors meet SAE requirements
- 5.2.47 High voltage connectors meet SAE requirements
- 5.2.48 High voltage connectors utilize locking devices
- 5.2.49 High voltage connectors are keyed
- 5.2.50 High voltage connectors are moisture proof
- 5.2.51 The Supplier has described the battery charger fail safe design features
- 5.2.52 The type size and location of the vehicle charging port is identified
- 5.2.53 The charge connector is keyed per SAE J1772 or J1773
- 5.2.54 The charge connector has a locking device per SAE J1772 or J1773
- 5.2.55 The charge connector is moisture proof per SAE J1772 or J1773
- 5.2.56 The Supplier has provided interior and exterior photographs of the vehicle (as appropriate)
- 5.2.57 The vehicle is ZEV certifiable to California Air Resources Board (CARB) requirements
- 5.2.58 The vehicle conforms to EPA requirements for receiving a ZEV Certificate of Conformity
- 5.2.59 The Supplier has described safety measures and safety related design features included in their vehicle's design
- 5.2.60 The Supplier has provided an explanation of the purpose and the anticipated effect on performance and reliability of the safety or design measures described in step 5.2.58
- 5.2.61 The Supplier recycling plan identifies post-purchase recycling costs that will be passed on to the vehicle purchaser
- 5.2.62 The Supplier has provided a list of all available additional vehicle systems
- 5.2.63 For each additional system, the Supplier has specified the impact on range

- 5.2.64 For each additional system, the Supplier has specified the impact on payload
 - 5.2.65 Service manuals provided by the Supplier include details on the design of vehicle systems
 - 5.2.66 Service manuals provided by the Supplier include details on the operation of vehicle systems
 - 5.2.67 Service manuals provided by the Supplier include details on the availability of parts and service
 - 5.2.68 Service manuals provided by the Supplier include a list of additional or special maintenance tools
 - 5.2.69 Maintenance personnel training programs are offered by the Supplier
- 5.3 Upon receipt of the vehicle, record the following information:
- 5.3.1 Vehicle identification number (VIN)
 - 5.3.2 Overall maximum dimensions (including projected frontal area) at curb weight
 - 5.3.3 Overall maximum dimensions (including projected frontal area) at curb weight plus 332 pounds
 - 5.3.4 Gross vehicle weight rating (GVWR)
 - 5.3.5 Gross vehicle axle weight ratings (GAWR)
 - 5.3.6 Curb Weight (as delivered)
 - 5.3.7 Payload rating (GVWR - curb weight)
 - 5.3.8 Weight at each wheel
 - 5.3.9 Traction motor type and rating
 - 5.3.10 Overall drive train ratio(s)
 - 5.3.11 Tire manufacturer, design, size and sidewall inflation pressure rating
 - 5.3.12 For the Traction Battery:
 - 5.3.12.1 Battery manufacturer
 - 5.3.12.2 Battery Type and model
 - 5.3.12.3 Nominal battery pack voltage
 - 5.3.12.4 Maximum and minimum battery pack voltages
 - 5.3.12.5 Number of modules
 - 5.3.12.6 Connection scheme (series, parallel, or series-parallel)
 - 5.3.12.7 Battery location
 - 5.3.13 Seating capacity (seat-belted positions)

- 5.3.14 Options included on the vehicle
- 5.3.15 Restraint system type(s)
- 5.3.16 Vehicle attitude measurements
- 5.3.17 Vehicle exterior dimensions
- 5.4 Heat Engine

Hybrid vehicles can utilize a variety of heat engine types in conjunction with the RESS. Verify and record the basic heat engine characteristics on Appendix B.

 - 5.4.1 Model
 - 5.4.2 Configuration
 - 5.4.3 Displacement (liters)
 - 5.4.4 Number of Cylinders
 - 5.4.5 Power (hp@rpm)
 - 5.4.6 Torque (lb-ft@rpm)
 - 5.4.7 Operating Range (rpm)
 - 5.4.8 Recommended Fuel (all types)
 - 5.4.9 Fuel Tank Capacity (liters) (specify for each fuel type)
- 5.5 Take receiving pictures of the vehicle, including the following minimum:
 - 5.5.1 Eight-point walk-around (front; rear; right profile; left profile; right front and right rear quarter; left front and left rear quarter)
 - 5.5.2 Dashboard instrument cluster
 - 5.5.3 Console instrument cluster
 - 5.5.4 VIN
 - 5.5.5 FMVSS Certification Label
 - 5.5.6 Battery container
 - 5.5.7 Controller
 - 5.5.8 Drive system components
 - 5.5.9 Battery charger (on-board or off-board)
 - 5.5.10 Tire Placard
 - 5.5.11 Any other placards or labels providing vehicle specific information on safety or operational requirements
 - 5.5.12 Charger connection
- 5.6 Note the location of the battery box and other conversion equipment:
 - 5.6.1 For pickup trucks, if the bed space or volume has been encroached upon, note the approximate reduction in usable space, as well as the equipment occupying the volume.

- 5.6.2 For sedans, if the trunk space volume has been encroached upon, note the approximate reduction in usable space, as well as the equipment occupying the volume.
- 5.7 Conduct testing of the following components. These tests may require removal of the instrument. [Testing of installed instruments may be delayed and tested under a separate Test Procedure. If this is the case, a Test Exception as defined in ETA-HAC04 should be taken.]
 - 5.7.1 Using a 5-inch cubic go/no-go block, with the vehicle loaded to GVWR and standing on a flat surface, when the block is in contact with the flat surface and passed beneath the sprung portions of the vehicle, the block does not contact any of the sprung portions of the vehicle.
 - 5.7.2 Disconnect the main propulsion battery from the auxiliary battery. Turn on the emergency flashers, and verify that they operate for at least one hour. This will verify loss of the main battery pack and a failure of the DC/DC converter.
 - 5.7.3 Verify that the State of Charge indicator is accurate to $\pm 2\%$ of full scale. This verification data can be obtained from section 5.1 of ETA-HTP04, completed as required by ETA-HTP11.
 - 5.7.4 Verify that the battery system voltage indicator is accurate to $\pm 2\%$ of full scale. This can be completed by comparing the indication of this meter to the indication of a calibrated meter attached to the same voltage source.
 - 5.7.5 Verify that the kilowatt-hour indicator is accurate to $\pm 5\%$ of full scale. This verification data can be obtained from section 5.1 of ETA-HTP04, completed as required by ETA-HTP11.

6.0 Glossary

- 6.1 Battery Ampere-Hour Capacity - The capacity of a battery in ampere-hours determined as a function of the total distance traveled by the vehicle during performance of the 45 mph Constant Speed Range Test portion of ETA-HTP04.
- 6.2 Depth of Discharge (DOD) - The quantified percentage of discharge of a battery, in terms of ampere-hours, kilowatt-hours or miles, expressed as a percentage of the total battery capacity in similar units.
- 6.3 Effective Date - The date, after which a procedure has been reviewed and approved, that the procedure can be utilized in the field for official testing.
- 6.4 Program Manager - As used in this procedure, the individual within Electric Transportation Applications responsible for oversight of the HEV America Performance Test Program. [Subcontract organizations may have similarly titled individuals, but they are not addressed by this procedure.]
- 6.5 Shall - Items which require adherence without deviation. Shall statements identify binding requirements. A go, no-go criterion.
- 6.6 Should - Items which require adherence if at all possible. Should statements identify preferred conditions.
- 6.7 State of Charge (SOC) - For this testing, the SOC of a battery is defined as the expected residual battery capacity, expressed in amperes-hours or watt-hours or miles, as a percentage of the total available. The 100% SOC basis (available ampere-hours, kilowatt-hours or miles) is determined by the actual discharge capability of the main propulsion battery when discharged to the requirements of the 45 mph Constant Speed Range Test portion of procedure ETA-HTP04.
- 6.8 Test Director - The individual within Electric Transportation Applications responsible for all testing activities associated with the HEV America Performance Test Program.
- 6.9 Test Engineer - The individual(s) assigned responsibility for the conduct of any given test. [Each contractor/subcontractor should have at least one individual filling this position. If so, they shall be responsible for adhering to the requirements of this procedure.]
- 6.10 Test Manager - The individual within Electric Transportation Applications responsible for the implementation of the test program for any given vehicle(s) being evaluated to the requirements of the HEV America Performance Test Program. [Subcontract organizations may have similarly titled individuals, but they are not addressed by this procedure.]

7.0 References

- 7.1 EV America Technical Requirements
- 7.2 ETA-HAC01, "Control, Close-out and Storage of Documentation."
- 7.3 ETA-HAC04, "Procedure for the Review of Test Results."
- 7.4 ETA-HAC05, "Training and Certification of Personnel Utilizing ETA Procedures."
- 7.5 ETA-HAC07, "Control of Measuring and Test Equipment"
- 7.6 ETA-HTP04, "Electric Vehicle Constant Speed Range Test"
- 7.7 ETA-HTP11, "Receipt Inspection Procedure"

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 1 of 5)

VIN Number: _____

AC06 Ref:	T/S Ref:	Parameter:	Initials:	Date:
5.2.1		Vehicle Make:		
5.2.1		Vehicle Model:		
5.2.1		Vehicle Year:		
5.2.2		Vehicle Manufacturer:		
5.2.3	3.1	Number of Occupants: (Minimum of 2)		
5.2.4	2.1	Payload Beyond Passenger Capacity:		
5.2.5	2.2	Design Curb Weight:		
5.2.6	2.1	Design Rated Payload: (Minimum of 400 lbs.)		
5.2.7	2.4	Speedometer Accuracy: (± 5%)		
5.2.8	2.4	Odometer Accuracy: (± 5%)		
5.2.9	2.6	Tire Manufacturer:		
5.2.10	2.6	Tire Model/Size:		
5.2.11	3.2	Interior Passenger Volumes/Dimensions:		
5.2.12	3.2	Cargo Area Volumes/Dimensions:		
5.2.13	4.1	Transmission Type:		
5.2.14	4.1	Transmission Parking Mechanism:		
5.2.15	4.4	Battery Voltage Limits Provided:		
5.2.16	6.4	Battery Module Weight:		
5.2.17	6.4	Battery Pack Weight:		
5.2.18	6.1	Battery Pack Voltage:		
5.2.19	6.1	Number of Battery Pack Modules:		

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 2 of 5)

AC06 Ref:	T/S Ref:	Parameter:	Initials:	Date:
5.2.20	6.1	Main Propulsion Battery Pack Description Provided:		
5.2.21	6.1	Propulsion Battery Specific Energy:		
5.2.22	6.1	Propulsion Battery Specific Power:		
5.2.23	6.1	Propulsion Battery 80% DOD 1 Hour Rate:		
5.2.24	6.1	Propulsion Battery 80% DOD 3 Hour Rate:		
5.2.25	6.6	Battery Box Condensation Control Methods:		
5.2.26	6.6	Normal Charging-H ₂ Gas Generation: (Quantity) (Maximum Rate)		
5.2.27	6.6	Abnormal Charging-H ₂ Gas Generation: (Quantity) (Maximum Rate)		
5.2.28	6.4	Battery Installation Details Provided:		
5.2.29	6.4	Battery Module Connection Data Provided:		
5.2.30	6.2	Internal Vent Pressure Level for Valve Regulated Batteries:		
5.2.31	6.1	Projected Charge Cycles at Various Levels of Discharge:		
5.2.32	6.2	Description of Battery Life Maximization:		
5.2.33		Description of Battery Management System (BMS)		
5.2.34	6.2	Description of How Battery Temperature Gradients are Minimized:		
5.2.35	6.2	Maximum Normal Gassing Rate for Battery Pack:		
5.2.36	6.2	Maximum Abnormal Gassing Rate for Battery Pack:		
5.2.37	6.7	Battery Packs are not Connected in Parallel:		
5.2.38	6.7	Detailed Information on Charging Algorithms Required to Prevent Parallel Strings from Becoming Unbalanced Provided:		
5.2.39	6.7	Battery Maintenance Requirements Described:		

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 3 of 5)

AC06 Ref:	T/S Ref:	Parameter:	Initials:	Date:
5.2.40	6.8	Battery Maintenance Costs Described:		
5.2.41	6.11	Battery Charging Method Algorithm provided by Supplier:		
5.2.42	6.2	Battery Off-Gassing Management Described:		
5.2.43	6.2	Battery Box Venting Information Provided:		
5.2.44	4.2	Regenerative Braking System Adverse Safety Impact Information Provided:		
5.2.45	7.1	High Voltage Breach Areas Have Been Properly Identified:		
5.2.46	7.1	Low Voltage Connectors Meet SAE Requirements:		
5.2.47	7.1	High Voltage Connectors Meet SAE Requirements:		
5.2.48	7.7	High Voltage Connectors Utilize Locking Devices:		
5.2.49	7.7	High Voltage Connectors are Keyed:		
5.2.50	7.7	Low Voltage Connectors are Moisture Proof:		
5.2.51	8.1	Battery Charger "Fail Safe" Design Features Identified:		
5.2.52	8.4	Vehicle Charging Port - Type, Size, and Location Provided:		
5.2.53	8.4	Charge Connector is Keyed:		
5.2.54	N/A	Charge Connector Complies with UL 2202:		
5.2.55	8.4	Charge Connector is Moisture Proof:		
5.2.56		Vehicle Interior/Exterior Photographs Provided:		
5.2.57	1.2	Vehicle Is ZEV Certifiable to CARB Requirements:		
5.2.58	1.2	Conformance to EPA Requirements for ZEV Certificate of Conformity:		

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 4 of 5)

AC06 Ref:	T/S Ref:	Parameter:	Initials:	Date:
5.2.59	1.3	Safety Measures / Safety Related Design Features Described:		
5.2.60	1.3	Explanation of the Purpose and Anticipated Effect Provided:		
5.2.61	1.5	Recycling Plan Post-Purchase Recycling Costs Provided:		
5.2.62	9.0	List of Available Additional Vehicle Systems Provided:		
5.2.63	9.0	Range Impact for Each Option Provided:		
5.2.64	9.0	Payload Impact for Each Option Provided:		
5.2.65	10.1	Detailed Design of Vehicle Systems (Service Manual) Provided:		
5.2.66	10.1	Detailed Operation of Vehicle Systems (Service Manual) Provided:		
5.2.67	10.1	Detailed Availability of Service/Parts (Service Manual) Provided:		
5.2.68	10.1	Additional/Special Maintenance Tools (Service Manual) Provided:		
5.2.69	10.2	Maintenance Personnel Training Programs Available:		
Comments (initials/date):				

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 5 of 5)

General Comments (initials/date):		
<div style="display: flex; justify-content: space-between;"><div>Completed By:</div><div>(Printed Name)</div><div>(Signature)</div><div>(Date)</div></div>		
<div style="display: flex; justify-content: space-between;"><div>Reviewed By:</div><div>(Printed Name)</div><div>(Signature)</div><div>(Date)</div></div>		
<div style="display: flex; justify-content: space-between;"><div>Approved By:</div><div>(Printed Name)</div><div>(Signature)</div><div>(Date)</div></div>		

APPENDIX-B

Vehicle Receipt Check List

(Page 1 of 3)

VIN Number: _____

Date Received:		Odometer (miles):	
Vehicle Year:	Vehicle Make:	Vehicle Model:	
Vehicle Body Style:		Vehicle Color:	
Vehicle Identification Number:		Date of Manufacture:	
GVWR (lbs):	Front GAWR (lbs):	Rear GAWR (lbs):	
Recommended Tire Size - F/R:		Recommended Tire Pressure - F/R:	
Traction Motor Type:		Traction Motor Rating:	
Overall Drive Train Ratio(s):			
Transmission Type:		Shift Lever Location:	
Designated Seating - Front:	Rear:	Total:	Front Seat Type:
RESTRAINT SYSTEM DESCRIPTION			
Driver:	C.F. Pass:	R.F. Pass:	
L.R. Pass:	C.R. Pass:	R.R. Pass:	
VEHICLE CONDITION AND INSTALLED OPTIONS			
Air Conditioning	Power Steering	Power Brakes	Power Windows
Power Door Locks	Cruise Control	Space Saver Spare	Front Wheel Drive
Telescoping Wheel	Tilt Wheel	Front Disk Brakes	Rear Disk Brakes
Power Seats	4 Wheel Drive	Anti-Lock Brakes	Regenerative Braking
Additional Significant Options / Accessories:			
Significant Body Damage / Corrosion:			
VEHICLE WEIGHTS AS RECEIVED (WITH MAX. FLUIDS)			
Left Front (lbs):	Right Front (lbs):	Total Front (lbs):	Percent Front:
Left Rear (lbs):	Right Rear (lbs):	Total Rear (lbs):	Percent Rear:
		Total Weight (lbs):	
VEHICLE ATTITUDE MEASUREMENTS AS RECEIVED (WITH MAX. FLUIDS)			
Left Front (in):	at	Right Front (in):	at
Left Rear (in):	at	Right Rear (in):	at
VEHICLE WEIGHTS WITH PAYLOAD (RECEIVED CURB + 332 POUNDS)			
Left Front (lbs):	Right Front (lbs):	Total Front (lbs):	Percent Front:
Left Rear (lbs):	Right Rear (lbs):	Total Rear (lbs):	Percent Rear:
		Total Weight (lbs):	
VEHICLE ATTITUDE MEASUREMENTS WITH PAYLOAD (RECEIVED CURB + 332 POUNDS)			
Left Front (in):	at	Right Front (in):	at
Left Rear (in):	at	Right Rear (in):	at
INSTALLED TIRES			
Tire Manufacture:		Tire Design:	
Tire Size:		Sidewall Inflation Pressure:	

APPENDIX-B

Vehicle Receipt Check List

(Page 2 of 3)

RESS BATTERY					
Battery Manufacture:					
Battery Type:			Battery Model:		
Nominal Pack Voltage:		Maximum Pack Voltage:		Minimum Pack Voltage:	
Number of Modules:		Connection Scheme:		Series Parallel Series-Parallel	
HEAT ENGINE					
Engine Model:					
Configuration:					
Displacement (liters):			Fuel Tank Capacity:		
Number of Cylinders:			Operating Range (rpm)		
Torque (lb-ft@rpm)			Power (hp@rpm)		
Fuel Types (all):					
VEHICLE RECEIVING PHOTOGRAPHS					
Eight-Point Walk-Around:					
Front		Rear		Right Profile	Left Profile
Right Front		Right Rear Quarter		Left Front	Left Rear Quarter
Additional Misc:					
Dashboard Instrument Cluster		VIN		Tire Placard	
Console Instrument Cluster		FMVSS Certification Label		Battery Container	
Controller		Drive System Components		Battery Charger (On-Board)	
Battery Charger (Off Board)		Charger Connection		Misc. Placards	
Misc. Labels		Misc.()		Misc.()	
Misc.()		Misc.()		Misc.()	
MISCELLANEOUS					
Vehicle/Truck Trunk/Bed Space or Volume Encroachment: Yes _____ No _____					
Using a 5-inch cubic go/no-go block, with the vehicle loaded to GVWR and standing on a flat surface, when the block is in contact with the flat surface and passed beneath the sprung portions of the vehicle, the block does not contact the sprung portions of the vehicle. CLEARANCE (inches) _____					
Disconnect the main propulsion battery from the auxiliary battery. Turn on the emergency flashers, and verify that they operate for at least one hour. This will verify loss of the main battery pack and a failure of the DC/DC converter. ACCEPTABLE _____ UNACCEPTABLE _____					
Verify that the State of Charge indicator is accurate to $\pm 2\%$ of full scale ACCEPTABLE _____ UNACCEPTABLE _____					
Verify that the battery system voltage indicator is accurate to $\pm 2\%$ of full scale. This can be completed by comparing the indication of this meter to the indication of a calibrated meter attached to the same voltage source. ACCEPTABLE _____ UNACCEPTABLE _____					
Verify that the kilowatt-hour indicator is accurate to $\pm 5\%$ of full scale. ACCEPTABLE _____ UNACCEPTABLE _____					

APPENDIX-B
Vehicle Receipt Check List
(Page 3 of 3)

General Comments (initials/date):		
<div style="display: flex; justify-content: space-between;"><div>Completed By:</div><div>(Printed Name)</div><div>(Signature)</div><div>(Date)</div></div>		
<div style="display: flex; justify-content: space-between;"><div>Reviewed By:</div><div>(Printed Name)</div><div>(Signature)</div><div>(Date)</div></div>		
<div style="display: flex; justify-content: space-between;"><div>Approved By:</div><div>(Printed Name)</div><div>(Signature)</div><div>(Date)</div></div>		